

# THE UNIVERSITY OF KANSAS SCIENCE BULLETIN

VOL. XXVII]

NOVEMBER 1, 1941

[No. 7

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## Herpetological Miscellany, No. II

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ABSTRACT: In this paper the following new species are described from Mexico: Order Caudata, Family Plethodontidae, *Thorius dubitus*, Acultzingo, Veracruz; *Thorius troglodytes*, Acultzingo, Veracruz; *Bolitoglossa chondrostega*, Durango, Hidalgo; and *Bolitoglossa terrestris*, near Tianguistengo, Hidalgo. Order Anura, Family Hylidae, *Hyla arboricola*, near Omilteme, Guerrero. Order Serpentes, Family Colubridae, *Geophis maculiferus*, near Cício, Michoacán; and *Orybelis potosiensis*, 38 Km. N. W. Ciudad Maiz, San Luis Potosí; Family Crotalidae, *Crotalus triseriatus gloydi*, Cerro San Felipe, Oaxaca, Oaxaca. Several other known species are discussed and figured.

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THE genus *Thorius* was proposed by Cope in 1869 for a small salamander having the "parietal and palatine bones rudimental, represented by cartilage and membrane," which he named *Thorius pennatulus*. It was likewise on the basis of this species that the family THORIIDAE was proposed. Two other diminutive species of the genus have been described. These are *Thorius narisovalis* Taylor (1940) and *Thorius pulmonaris* Taylor (1940) from Cerro San Felipe near Oaxaca, Oaxaca.

At various times I have obtained specimens of the genus *Thorius* from near Acultzingo, at the summit of the mountains where the highway crosses. I referred the specimens to *Oedipus pennatulus* (Cope) (Taylor, 1939) and later to *Thorius pennatulus* Cope (Taylor, 1940), calling attention to the fact that apparently two forms were present in the specimens collected. In 1940 I was able to examine large numbers of a species of *Thorius* collected by Dr. and Mrs. Hobart M. Smith at Cuautlapan, Veracruz, and to visit this locality myself and collect large series of the same species. This species is different from the two forms occurring at Acultzingo. The

locality Cuautlapan is a few miles north of Orizaba, and only a few hundred feet lower. The locality near Acultzingo is perhaps 25 miles south of Orizaba and several thousand feet higher.

The type of *Thorius pennatulus* is apparently lost and I am confronted with the necessity of determining which, if any, of these three forms is *Thorius pennatulus* Cope. The cotypes, 7 in all, originally bore the numbers USNM 6341 (six specimens) and 6744, color variety (1 specimen). No specimens bearing these numbers can be found in the National Museum today. Dr. Emmet Reid Dunn, in his study of the PLETHODONTIDAE, suggests that these cotype specimens (collected by F. Sumichrast at "Orizaba," Mexico) are now catalogued under the numbers ANSP 1269 (three specimens "Orizaba" collected by Sumichrast and USNM Nos. 30348-30349, 25101 no data, returned from Philadelphia after having been in the hands of E. D. Cope); and 30352, having the same history. This last specimen was placed in the species *Oedipus* [= *Bolitoglossa*] *townsendi* by Dunn when he described that species.

I have examined the presumed cotypes in the National Museum, 25101, 30348, 30349. The first of these consists of several body fragments with part of the head. The snout is missing, part of the jaws cannot be discovered. I find none of the limbs, and cannot be certain that the species belongs to the genus *Thorius*. (This could be determined by a study of the individual components of the skull.) No. 30348 consists of a head and part of the neck, and a fragment with several vertebrae. This is possibly a specimen of *Thorius*, but the nostril is small, less than half the size of the nostril in the Cuautlapan specimens. The skin is very smooth on the head and the snout is very narrow and pointed. If this is a specimen of *Thorius* it is not the species from Cuautlapan. No. 30349 consists of a small fragment of the body of a salamander, and unless the character of the few vertebra should prove diagnostic, cannot be certainly placed in the genus *Thorius*.

Certain other old specimens identified as *Oedipus pennatulus* in the National Museum have been examined. These are USNM No. 47798, a hardened, shrivelled specimen which appears to be a specimen of *Thorius pulmonaris*, Reyes, Oaxaca; No. 47608, a hardened specimen, appears to be of *Thorius narisovalis*, Cerro de San Felipe, Oaxaca.

Specimens of *Thorius* in the British Museum coming from 9,000 to 10,000 feet elevation on Mt. Orizaba (Xometla), as well as specimens designated as from "Orizaba," have been referred to *pennatulus* (Dunn, Plethodontidae, p. 365-439). In consequence, I have in

the past presumed that the type locality "Orizava" referred to the mountain rather than to the city.

Since a species of *Thorius* has been discovered near Orizaba and at the same approximate elevation, it is probable that the types as well as certain other specimens in the British Museum labeled "Orizaba" are from near the city. Thus it becomes reasonably certain that the type locality actually refers to Orizaba city rather than to Mt. Orizaba. Another point in favor of this view is that mixed with the *Thorius* collected by Smith are several specimens of a diminutive bolitoglossid salamander which agree with my paratype specimen of *Bolitoglossa townsendi* (Dunn); and certain evidence points to the fact that the specimen in the National Museum referred by Dunn to this species was likewise collected with *Thorius pennatulus*.

It seems probable that the high mountain specimens, 9,000-10,000 feet elevations (Xometla), should be referred to a species other than *pennatulus* Cope.

Since there is no absolutely authentic type I propose to designate one of Smith's recently collected specimens as a neotype, USNM No. 111017, so that it may be of value for reference to future workers.

#### KEY CHARACTERS OF THE SPECIES OF THORIUS

- A. Nostril large, oval, greatly elongated, nearly twice as long as wide. Foot and hand broadened, the digital tips more or less pointed; premaxillary teeth apparently never piercing upper lip in males. (Cerro San Felipe and Cerro San Luis, near Oaxaca, Oaxaca.).....*Thorius pulmonaris* Taylor.
- AA. Nostril large, round or oval, never greatly elongated.
- B. Nostril very large, circular; digits pointed; usually a single premaxillary tooth piercing lip; subnarial swelling pendant; submental gland very distinct. (Region about Orizaba city and Cuautlapan, Veraeruz.).....*Thorius pennatulus* Cope.
- BB. Nostrils large, oval; digits rounded at tips; one or two premaxillary teeth piercing lip. Subnarial swelling not pendant.
- C. Skin of head smooth or with only a faint trace of pitting; the upper extension of hyoid (epibranchial) reaches level of arm insertion; usually a single tooth piercing lip; body and tail more or less compressed. (Mountain summits near Acultzingo, Ver.).....*Thorius dubitus* sp. nov.
- CC. Skin of head usually more or less pitted; upper extension of hyoid (epibranchial) usually extending to at least posterior level of arm or farther; body not compressed, but rounding or somewhat flattened; tail more or less cylindrical at base.
- D. Larger; maximum snout-to-vent length, 32 mm.; head and body strongly pitted; three premaxillary teeth pierce lip; nostril larger; about 35 caudal grooves in full-grown specimen. Found above ground under bark of rotting logs. (Cerro San Felipe and Cerro San Luis, Oaxaca.).....*Thorius narisovalis* Taylor.
- DD. Smaller; maximum snout-to-vent length about 26 mm.; head and body usually dimly (rarely distinctly pitted); usually one, rarely two, premaxillary teeth pierce lip; nostril proportionally smaller; about 40 caudal grooves; dorsum lighter; found under rocks or in cavities in clay, animal burrows, etc. (Region above Acultzingo.)  
*Thorius troglodytes* sp. nov.

*Thorius dubitus* sp. nov.

(Plate III, fig. 3)

*Thorius pennatulus* Taylor, Univ. Kansas Sci. Bull., XXVI, 1939 (Nov. 27, 1940), pp. 411-416 (part), pl. XLVII, fig. B.

*Type.* EHT-HMS, No. 17751, collected at summit of mountain about two miles south of Aeuhtzingo, Veraacruz (near Puebla line), in moss, July 20, 1938, by E. H. Taylor.

*Paratypes.* EHT-HMS, Nos. 17731-17750; 17752-17786; 22064-22084; USNM Nos. 110984-110991; 110993-111007; 111009-111011. All topotypes.

*Diagnosis.* A diminutive species, maximum size (head-body length) 22 mm.; 13 costal and about 35 caudal grooves; body somewhat compressed, deeper than wide; tail distinctly compressed, quadrangular; groove below eye tending to bisect line of mouth anterior to the posterior corner of eye; posterior hyoid extension reaches posteriorly to level of arm insertion; nostril large, oval; subnarial swellings moderate; mental gland distinct; premaxillary tooth pierces the lip; adpressed limbs separated by 5-5½ costal folds; lighter dorsal marking terminates at tail.

*Description of the type.* Adult male; head and neck a little wider than the body, and relatively low; distance between orbits minutely greater than width of an eyelid; nostril large, oval, diagonally placed, about .5 mm. in greatest diameter; subnarial swelling distinct, not pendant (as in *pennatulus*); eye large, about equal to length of snout; a slight diagonal fold indicated behind posterior corner of eye, but not concealing the terminal portions of eyelids; parietal and interorbital regions of head flat, slightly lower than level of snout; groove behind eye faintly indicated; a strong groove running below orbit bisects line of mouth anterior to posterior point of eye; an indistinct groove crosses throat and extends across jaw angles; a groove forming an arch rests on the transverse groove and reaches forward to near the submental gland; a strong nuchal fold crosses throat curving back; from this a deep irregular groove ascends the sides of the neck and joins its fellow from the opposite side on the middorsal line; musculature on the neck causes a curving lateral fold of skin on side of neck; elevation caused by superior hyoid extension reaches posteriorly barely to level of arm insertion; 13 costal grooves, most of which can be traced across abdomen.

Tail somewhat constricted in cloacal region, distinctly quadrangular and laterally compressed to tip; about 33 caudal grooves (tail complete); a distinct linear depression along the median dorsal line;



more or less continuous along the middorsal line of the back; adpressed limbs separated by about 5 costal folds; limbs short, the tips of the two middle fingers free, rounded at tips; outer fingers adhering to sides of the middle fingers, without free tips or web; order of length, 1, 4, 2, 3; subterminal pads moderately distinct; toes in the following order of size, 1, 5, 2 = 4, 3; the three middle toes with the first joint free, their ends rounded; fifth toe very narrow, without free tip; first toe wide, likewise without free tip.

Tongue boletoid, somewhat elongate, the anterior part attached to stalk, free behind; a small sublingual fold with free edge; a single premaxillary tooth pierces the lip a little back of the edge; six vomerine teeth on a transverse ridge, arranged in two rather irregular series, separated medially, not reaching inner level of choanae; latter small, narrow, oval, more or less continuous with the deep groove which emerges from them; parasphenoid teeth in a single series, narrowed anteriorly, widened posteriorly, separated from vomerine teeth by a distance about equal to width of the two vomerine series; mandibular teeth minute, about 14 on each side.

Skin very smooth without distinct pits on head or body (indistinctly pitted in certain paratypes).

*Coloration.* Brownish above on back; sides blackish, growing lighter towards venter, which is light brown; no white flecks on chin or venter, but the chin is somewhat lighter than venter; upper surface of tail darker than body, lacking a dark lateral stripe.

*Measurements of type in mm.* Snout to posterior end of vent, 21; tail, 23; total length, 44; width of head, 2.8; head to gular fold, 3.9; axilla to groin, 11.3; snout to arm insertion, 6.5; arm, 3.5; leg, 4.

*Remarks.* This diminutive species varies but little in the large series. All were taken in a deep mass of moss and other plants growing at the base of a lone pine tree. The method of collecting consisted in uprooting pieces of the thick turf, tearing them to pieces, and shaking them. The salamanders were usually coiled in watch-spring spirals and would remain motionless in this position when exposed, as if feigning death. Associated with them were numerous small millipeds which were similarly coiled and of the same general color. Nearly a hundred of these salamander specimens were obtained from an area less than four meters square.

The specimens were killed by immersion in weak alcohol and all tended to die in rigor mortis, the body forming a downward curve, the tail curving upward. Specimens of *Thorius troglodytes*, sp. nov. found in the vicinity, usually under rocks in clay soil, when killed in the same identical liquid, remained relaxed and straight.

Similar results were obtained with the two forms with alcohols of different concentrations. This suggests distinct physiological as well as morphological differences in the two forms.

The three figures given in my previous work (Taylor, Nov., 1940, *loc. cit.*, pl. XLVII, fig. B, "*Thorius pennatulus*") show the more salient characters of the head of the type, and offer a comparison with similar figures of *Thorius troglodytes* (Fig. A, "*Thorius pennatulus*") and *Thorius narisovalis* (Fig. C.).

*Thorius troglodytes* sp. nov.

(Plate III, fig. 4)

*Thorius pennatulus* Taylor, Univ. Kansas Sci. Bull., XXV, No. 14, 1938 (mailing date, July 10, 1939), pp. 293-294 (Acultzingo); and *idem.*, XXVI, 1939 (mailing date, November 27, 1940), pp. 414-416 (*part.*), pl. XLVII, fig. a.

*Type.* EHT-HMS, No. 17791, collected along old road on mountains about two miles south of Acultzingo, Veracruz, July 10, 1938.

*Paratypes.* EHT-HMS, Nos. 12142-12143; 17789-17790; 17791A  
*Topotypes.* USNM, Nos. 110961-110972, 110974-110983; 110992  
*Topotypes.*

*Diagnosis.* A species intermediate in size in the genus, maximum length, snout to posterior end of vent, 26 mm.; groove below eye usually intersects the line of mouth below the posterior corner of eye; nostril oval, large, the subnarial swelling small; body flattened rather than compressed; tail not, or but very little compressed; dorsal coloration continued on dorsal surface of tail to tip; sides darker, gradually growing lighter towards venter; chin and region below neck with numerous whitish flecks; 13 costal, and about 40 caudal grooves; pitting on head more or less distinct.

*Description of type.* Adult male; head slightly wider than neck, not distinctly wider than body; parietal region slightly curving rather than flat; eyelid little raised, narrower than interorbital distance; eye large, longer than snout, but about equal to its distance from the tip; nostril oval, large, diagonally placed, at least half diameter of eye; subnarial swellings present, not beadlike or strongly pendant; a very slight diagonal fold is visible at the posterior corner of the eye, beneath which the posterior parts of the eyelid tend to terminate; the groove below the orbit intersects the line of the mouth almost directly below the posterior corner of the eye; a groove crossing the jaw angles barely reaches the lower level of the eye, and can be traced across the throat, but usually not in a continuous line; an irregular groove arches from this groove as a base, and extends forward, almost in contact with the enlarged submental gland; the

arch itself more or less angulate; a strong nuchal fold crosses the throat, curving back, and from its sides arise shallow grooves which continue to the median dorsal surface; there is not or at least only a faint suggestion of a longitudinal groove back of the eye (apparent if the specimens are somewhat desiccated); the concealed musculature of the neck does not form curving folds; the elevation caused by the posterior hyoid extension reaches almost to the first intercostal fold; 13 costal grooves; practically none of which can be traced completely across the abdomen; tail minutely higher than wide, nearly cylindrical; 35 caudal grooves; the tip of the tail apparently complete; a discontinuous, shallow, median, dorsal groove, more or less indicated, which is not continued on to the tail; a distinct constriction at the base of tail, posterior to the vent; the adpressed limbs are separated by  $5\frac{1}{2}$  costal folds; arm short, the tips of the two middle fingers oval with at least one free joint; the tip of the outer finger free; that of the first finger completely fused to the side of the second, leaving a somewhat rounded knob; three middle toes with tips rounded; at least with one free joint; inner toe with tip free; outer toe fused to the side of the fourth, without free tip; the second and fourth toes about equal in length, the middle longer.

Tongue boletoid, somewhat elongate, with a slight sublingual fold; the attachment is at the anterior point of the tongue, the posterior part free; no maxillary teeth; 2 premaxillary teeth pierce the lip; about 18 mandibular teeth on each mandible; vomerine teeth on a ridge across palate, 4 or 5 on each side separated somewhat, medially; parasphenoid teeth in a single series, narrowed anteriorly, widened posteriorly, separated from the vomerine series by a distance equal to the width of the vomerine series.

Skin of the head showing shallow pits; skin of the dorsal surface of the body very smooth; skin between the costal grooves somewhat pitted, but not longitudinally wrinkled.

*Coloration.* Light brown above, slightly darker on the head with a faint trace of a dorsal line of darker spots; sides darker brown, growing lighter on the venter, which is fairly heavily pigmented with light brown; chin and throat with numerous cream flecks; the dorsal coloration of body is continued on to the tail; subnarial swellings grayish white.

*Measurements of the type in mm.* Snout to the posterior end of vent, 26; tail, 30.5; total length, 56.5; head width, 2.1; head to gular fold, 4.15; axilla to groin, 15; snout to arm, 6.5; arm, 3.4; leg, 4.

*Remarks.* The variation observable in the form is not great. In

some specimens the distinctness of the pitting is greater than in the type, and in certain ones possibly less distinct. Females are slightly darker, in general, than the males and the contrast of the dorsal and lateral coloration is somewhat less. There is a slight variation in the number of teeth; several of the specimens have only a single premaxillary tooth piercing the lip, and the number of mandibular teeth varies between 16 and 20; in some cases the vomerine teeth are not arranged in a linear series. The choanae are small and oval.

The skulls apparently have very little calcium, and the individual bones do not maintain their shape when dried. The small gland behind the insertion of the femur is present.

A number of specimens show a regenerated tip on the tail. As previously recorded (Taylor, 1940) some of the specimens have the tip of the tail infested with a small worm below the epidermis, and it is possible this is responsible for the loss and subsequent regeneration of the tip. It was likewise noted that numerous specimens of *T. dubitus* show similar regeneration.

A single specimen from Toxtlacuaya, Veracruz, from a lower elevation, is present in the collection. The particular specimen has the nostril very greatly reduced in size, and I suspect that it represents an undescribed form. I am holding this specimen, trusting that a series may be available before its characteristics are described in detail.

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The distribution of the amphibian fauna in the state of Hidalgo is somewhat puzzling. This region appears to be a meeting place of three faunal subprovinces.

The mountains of the southern part of the state reach an elevation of about 10,000 feet, and have much pine and other cone-bearing trees. Here at the highest elevation the amphibians are *Bolitoglossa multidentata*, *B. dimidiata*, *Hyla eximia*, *Hyla lafrentzi*, *Hyla forbesorum*, *Rana* sp., while at a somewhat lower elevation *Bolitoglossa manni*, and *B. belli* occur.

To the northeast and separated by the deep and narrow valley of the Rio Amo, the largest branch of Rio Panuco which empties into the Gulf of Mexico farther to the north, there is a region that differs considerably from the Pachuca region in its fauna. The maximum elevation is probably less than 8,000 feet and the average elevation is perhaps near 6,000 feet. Here the characteristic salamanders are *Bolitoglossa terrestris* sp. nov., *B. gigantea*, *B. sp.* (related to *cephalicus*), and *B. arborea*. The Anuran group shows *Rana pipiens* var..

*Hyla baudinii*, *H. robertsororum*, *H. eximia*, *H. bromeliana*, *H. miotympanum*, *Syrrophus verrucipes*, *S. verruculatus*, and *Eleutherodactylus* sp.

Certain very distinctive reptiles are known. These are *Lepidophyma sylvatica*, *Micrurus bernardi*, *Thamnophis halophila*, *Geophis multitorques*, *Storeria* sp., *Storeria dekayi* var., and *Leptodeira septentrionalis*.

To the west and northwest the state has less rainfall, and in some localities it may assume a semidesert appearance. The high forest contains pine occasionally and there is much exposed limestone, especially in the north.

Here the character of the fauna changes again and the salamanders are represented by *Bolitoglossa chondrostega* sp. nov., *B. belli*, *B. sp.*; the Anura by *Syrrophus latodactylus*, *Tomodactylus miotympanum*. The reptiles have *Leiopisma forbesorum*, *Gaigia gaigeae*, *Rhadinaea gaigeae*, and *Crotalus molossus nigrescens*.

The species listed do not represent the total fauna of the areas, but are, for the most part, forms apparently confined to or appearing in a single region. Future collecting may change this picture, showing that these forms are more widely spread in Hidalgo, but it is quite as likely that the discovery of more new endemic forms will establish these faunal areas on a firmer basis.

In this paper I include descriptions of two of the undescribed forms.

*Bolitoglossa chondrostega* sp. nov.

*Type.* EHT-HMS, No. 17304 ♂; collected at Durango, Hidalgo, 5,000 to 6,000 feet elevation, September 12, 1938, by E. H. Taylor.

*Paratypes.* EHT-HMS, Nos. 17283-17303; 17305-17310. Topotypes, same data as type.

*Diagnosis.* A small salamander presumably a member of the *chiropterus* group, resembling *chiropterus*, but differing in having the dorsal roof of the skull largely of cartilage. The mandible likewise is largely cartilage. Form similar to *chiropterus*, but the foot is much smaller, the teeth more numerous in the males.

*Description of the type.* Eye very large (2 mm.), its length greater than the length of the snout (1.7 mm.); snout strongly rounded in front of eyes, truncate at end; subnarial swellings prominent, the nostrils small; groove below eye terminates below eye and fails to reach posterior level; line of mouth curving slightly between narial swelling and its posterior angle; snout extends somewhat beyond tip of lower lip; width of an eyelid slightly less than interor-



bital distance; a strongly developed, free, sublingual fold crenellated on front edge; tongue large, free; vomerine teeth 7-7 in two curving diagonal rows on a transverse ridge, separated narrowly medially, extending to outer level of the very small choanae; parasphenoid teeth in two series widely separated from the vomerine series; maxillary-premaxillary teeth 17-16, the teeth variable in size; the premaxillary teeth pierce the gums just back of the edge of the lip (females with 20-20 teeth which are more uniform in size); mandibular teeth 20-20, a little larger than those in maxillary (female 22-20, and distinctly shorter than those in males). A faint trace of a groove behind eye; a vertical groove crosses angle of jaw visible ventrally for a short distance; gular fold strong, the grooves arising from its ends ascend to median line on neck; a faint groove between the two vertical grooves above which are four island-like areas; 13 well-defined costal grooves, not, or scarcely visible on sides of venter; cloacal wall papillate; skin of head and body more or less distinctly pitted; limbs, when adpressed, are separated by about two costal folds; first finger and toe involved in web without free tip; other digits with one or two joints free, the tips oval with well developed subterminal pads; the toes are held spread apart; tail slightly compressed, constricted at base; about 30 caudal grooves, the distal ones very indistinct; mental gland not well defined externally; a small glandular spot behind insertion of femur.

*Color.* Above grayish plumbeous to lavender, growing lighter on sides; venter with uniform pigment, appearing dull, dirty cream, without spots or blotches; when held under water, a very faint dorso-lateral dark line can barely be distinguished.

*Measurements in mm.* Snout to vent, 29; tail, 34; head width, 4.4; head length to gular fold, 6.3; axilla to groin, 14.5; snout to forearm, 9.4; arm, 6.5; leg, 6.5.

*Remarks.* The species is most closely related to *Bolitoglossa chiroptera*, from which it differs in smaller size, larger series of mandibular teeth in males (22-17), smaller feet, and a more poorly ossified skull. From *B. multidentata* it differs in having shorter limbs, very much smaller feet, and a much narrower head.

The species belonging to the *chiroptera* group of the genus *Bolitoglossa* seem to have a varied series of color patterns that are found in the several species; these consist of: (1) nearly uniformly colored individuals lacking distinctive patterns; (2) a pattern in which there is a median stripe of the darker ground color, bordered dorso-laterally by cream colored stripes; (3) a pattern in which the dorsal

surface (or at least the medial part) will have a light stripe of cream-orange or red-orange. In these cases there is usually more lateral pigmentation, and, by contrast, is darker.

These patterns are present, at least, in the following species of the group: *chiroptera*, *chondrostega*, *xolocalcae*, *terrestris*, and to a lesser extent in *arborea*.

*Bolitoglossa terrestris* sp. nov.

*Type.* EHT-HMS, No. 23354 ♂; collected July 1, 1940, about six miles south of Tianguistengo, Hidalgo, Mexico, at an elevation of about 5,000 feet, by Edward H. Taylor.

*Paratypes.* EHT-HMS, Nos. 17311-17359, 23244-23310, five to six miles north of Zacualtipan, Hidalgo, Richard C. Taylor and Edward H. Taylor; Nos. 23311-23405, four to ten miles south of Tianguistengo, Hidalgo; same collectors.

*Diagnosis.* A small salamander of the Chiroptera group having a tail as long as or slightly longer than snout to vent measurement; teeth in male reduced in both upper and lower jaw, the teeth bent back and slightly hooked; skull and jaw ossified; limbs separated by  $1\frac{1}{2}$  (male) to 3 folds (female); usually a dark lateral line, interrupted at shoulder; maximum size about 31 mm., snout to vent; total length, 60 mm.

*Description of the type.* Head not, or but minutely, broader than body; eyes prominent, their length (1.6 mm.) less than length of snout (1.9 mm.); snout rounding above, lacking a canthus; sub-narial swellings distinct, but small; nostrils very small, oval, the groove from them runs back, then curves down to the swelling; end of snout rather truncate, but seen in dorsal profile is somewhat curved and extends beyond lower lip; eyelid in interorbital distance more than one and one-third times; premaxillary teeth 4-5, elongate, protruding immediately behind the edge of the lip or actually through the edge; parasphenoid teeth in two series, widely separated from vomerine teeth; maxillary-premaxillary series, 13-14, the teeth not of equal size; mandibular teeth about 14-15, likewise unequal; vomerine teeth, 5-4, not or scarcely separated medially on a somewhat elevated ridge, not reaching beyond the outer level of the small circular choanae; tongue free, large, with a distinct sublingual fold; the corners of the eyelid do not fit under a diagonal fold, although a trace of the latter can be seen; groove from corner of eye back across temporal region wanting (can be seen in slightly desiccated specimens); skin more or less pitted; a well-defined groove runs

across throat, crosses angle of jaws, runs up to level of eye, and divides, one branch going forward a short distance, one backward and upward; gular fold ample, the grooves emerging laterally continue to the median dorsal line; a groove appears between the two vertical grooves, above which, the skin forms islandlike areas; there are 11 well-defined costal grooves, the axillary and inguinal wanting, save for tiny grooves high on the sides; grooves do not continue across venter; cloacal walls papillate (folded in female); the cloacal region swollen with a fleshy flattened cream-colored body emerging from cloaca (present in most males, perhaps spermatophore?).

Limbs well developed, the first finger and toe included in the web save for the extreme tip; third finger and toe longest, the other digits subequal in length; the web includes the proximal phalanges, but is somewhat excised between them; when adpressed, the limbs are separated by about one and one-half costal folds. Mental gland distinct; a small glandular patch behind insertion of femur; tail rather cylindrical, somewhat narrowed at base.

*Color.* Above variegated lavender to brownish lavender with occasional minute darker or lighter flecks; snout a little lighter than top of head. An indefinite darker lavender to purplish dorsolateral stripe runs to eye, but is interrupted on shoulder where somewhat reddish markings intervene; below, dirty cream with a slight scattering of pigment.

*Measurements in mm.* Snout to end of vent, 26.5; tail, 29; width of head, 4.5; length of head to gular fold, 7.3; snout to arm, 8.6; axilla to groin, 14.8.

*Variation.* The teeth in the females are more numerous, about 25-25 in the maxillary-premaxillary series and a similar number in the mandible. The average axilla to groin distance is greater in females than in the males; the head is a little thicker and wider and they attain a slightly greater size.

In life many of the specimens had red spots on the femur and reddish markings in the nuchal region. A few had the backs red or reddish orange, more intense on neck (the red soon fades in preservation); young females and a few adult females, as well as a few young males, have more pigment on the belly, showing inclosed cream flecks.

The lateral dark stripe and the light area on the snout are often obscured if the specimen is dark; but prominent if the animal is light. A few of the specimens have a pair of cream (red) dorso-lateral lines.

*Remarks.* One specimen (No. 23344) had just eaten a tiny specimen of salamander, apparently the young of the same species.

The "organ" extruded from the cloaca, takes its rise from the two glands lying at the sides of the cloaca. About a half of the free end is visible externally, which becomes twisted sometimes by preservation.

Another species in which I have found a similar projection from the cloaca is *Bolitoglossa dimidiata*. I have found nothing of this sort in *B. multidentata*, *chiroptera* or *B. chondrostega* taken at the same time of the year.\*

One female examined had 13 large, nearly ripe, ovarian eggs.

#### *Eleutherodactylus mexicanus* Brocchi

In a recent paper I have discussed four frogs (Taylor, Some Mexican Frogs. Proc. Biol. Soc. Washington, Vol. 54, July 31, 1941, pp. 87-94) of the *mexicanus* group of the genus *Eleutherodactylus*. I endeavored to show that the name *mexicanus* apparently applied to the southeastern Mexican frog that has the vomerine teeth absent or at least greatly reduced. The forms *Hylodes calcitrans* Günther, *Borborocoetes mexicanus* Boulenger, *Leipurus mexicanus* Brocchi and *Eleutherodactylus saltator* Taylor have been confused, at least the three first have been placed in three different genera, by as many authors and by a more recent author in a single species. I am providing figures here to show some of the salient body characters that are difficult to visualize from written descriptions. It is obvious that the *mexicanus* of Boulenger is preoccupied by *mexicanus* of Brocchi. In consequence I have given the name *Eleutherodactylus occidentalis* to the Boulenger species.

The following species are illustrated: *Eleutherodactylus saltator* Taylor (plate IV, fig. 2), *Eleutherodactylus occidentalis* Taylor (plate IV, fig. 1), and *Eleutherodactylus calcitrans* Günther (plate V, fig. 2).

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In a recent paper dealing with the *eximia* group of the genus *Hyla*, I noted the apparent absence of a representative of this group in the territory south of the Balsas Basin in the state of Guerrero. During my sojourn in this region in 1940 a new species belonging to this group was discovered west of Chilpancingo at a point not far from Omilteme at an elevation between 7,500 and 8,000 feet. Specimens

\* Specimens of these forms were sent to the late Dr. G. K. Noble, who agreed to make a study to determine whether the cloacal bodies were typical spermatophores or whether something in the nature of a temporary intromittent organ. Whether he completed this study is not known.

were first encountered in a small natural pond, in the very narrow valley between two mountains where the species was breeding. The pond was some fifty feet in diameter and not more than three feet deep. All about the edge in the shallow water were numerous egg masses. A few pairs were clasping at 3:30 p. m. Several specimens were collected at this time. On my return journey about forty-eight hours later no specimens were at the pool. However, a search in the vicinity resulted in their discovery in bromeliad plants within a hundred meters of the pool. Several more specimens were obtained as I examined the plants. I propose to distinguish this species as *arboricola* sp. nov.

*Hyla arboricola* sp. nov.

(Plate V, fig. 1)

*Type.* EHT-HMS, No. 24556 ♀. Collected at an elevation of about 7,000 feet about six miles east of Omilteme, Gro., Mexico, August 5, 1940, by Edward H. Taylor.

*Paratypes.* Nos. 24557-24588, topotypes.

*Diagnosis.* A member of the *Hyla eximia* group, but with head as broad as or broader than body; no well-defined black and cream line on side of head; dark markings on back not bordered with cream; posterior and anterior face of femur with uniform pigmentation; limbs lacking black bars or marks; tibiotarsal articulation reaches the anterior part of eye; web extends beyond the distal sub-articular tubercles; a canthus rostralis.

*Description of the type.* Eye moderately large, its length (3.5 mm.) equal to its distance from the nostril, less than length of snout (5.5 mm.); upper eyelid (3 mm.) less than interorbital distance (4.1 mm.); length and width of head about equal; diameter of tympanum (2.1 mm.) a little less than its distance from posterior corner of eye; canthus somewhat rounding, the lores not, or but slightly, concave, sloping to lip; region about nostrils somewhat swollen.

Tongue rather small, subcircular, a little longer than broad, slightly nicked behind; (vocal sac present in males); vomerine teeth 5-5 in two raised areas wholly between and equal in size to the large choanae, separated from the latter by a distance equal to near the width of one group, and very narrowly separated from each other; maxillary glands open into a sinuous groove about midway between choanae and premaxillary.

Dorsal surface smooth or minutely corrugated when seen under a lens; all ventral surfaces heavily granular; sides of body likewise granular; a well-defined fold on breast; a groove behind anal open-



ing; the anal flap not elongated; only a trace of a web between fingers; well-developed terminal disks which are a little wider than those on toes; well-developed subarticular tubercles with numerous other irregular granules; three more or less distinct enlarged palmar pads and an elongate pad on base of the first finger; webs on toes attach a little in advance of the distal tubercles except on fourth finger, which has two joints nearly free; inner metatarsal tubercle large, longer than wide; a small, indistinct outer tubercle; a high fold extends length of tarsus; when limbs are folded at right angles to body the heels overlap about two millimeters.

*Color.* Uniform gray-green on dorsal and lateral surfaces, with faint traces of elongate darker markings; sides of head lighter green; all ventral surfaces cream, including undersurfaces of sole, palm and digits. The males are smaller and the markings more distinct.

*Measurements of type in mm.* Snout to vent, 37.5; head width, 14; head length, 13; arm, 25.5; leg, 60.5.

*Remarks.* The relationship of this species is probably closer to *Hyla euphorbiacea* and *Hyla eximia* Günther than to other members of the group. From the former it differs in lacking the markings on the posterior femoral region, has more web on feet and larger pads. When it is directly compared with *Hyla eximia* from Puebla and Michoacán the following differences are evident: head shorter and proportionally a third (or more) wider in specimens of equal size; the snout much less pointed; the webbing is distinctly greater between the toes, and the terminal pads are proportionally larger. The dark and light stripes on upper labial region wanting, or so indistinct that they are not discernible; the canthus is more distinct.

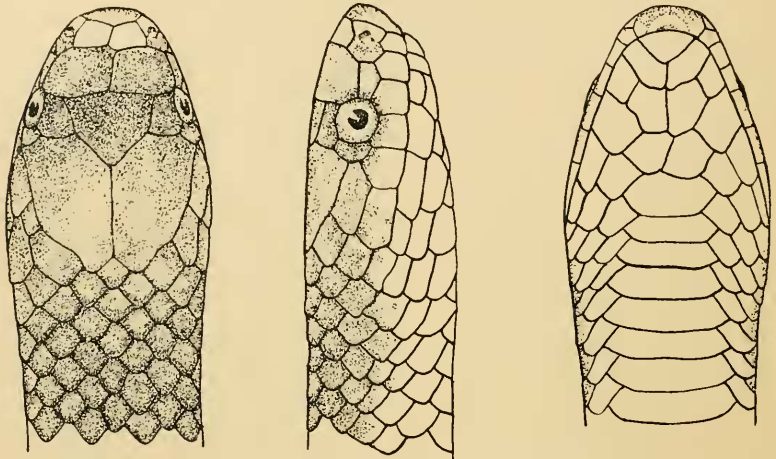
*Geophis maculiferus* sp. nov.

*Type.* EHT-HMS, No. 23552, collected on the "Huetamo" road near the village of Cício, Michoacán, 17 Km. south of the Mexico-Guadalajara highway, August 14, 1940, by Edward H. Taylor.

*Diagnosis.* Belonging in the *Dirosema* section of the genus. A large anterior temporal; 6 upper labials, last largest; frontal one-third wider than long; rostral narrowly visible above; supraoculars relatively large; labials, internasals, and ventral surfaces creamy or yellowish white.

*Description of the type.* Rostral much wider than high, narrowly visible above; internasals wider than long, their posterior sutures transverse; prefrontals very large, subquadrangular, their mutual

suture more than half length of frontal, entering eye, touching loreal (preocular) and posterior nasal, laterally; frontal nearly triangular, its anterior angle very obtuse, barely reaching anterior level of eye, much shorter than its distance from end of the snout; parietals elongate, their length greater than their distance to end of snout; nasal divided, the nostril almost wholly in the anterior; loreal about twice as long as high, the anterior and posterior ends parallel, its upper edge a straight horizontal line, its length equal to its distance from nostril; supraocular nearly as wide as long; one postocular;



TEXT FIG. 1. *Geophis maculiferus* sp. nov. Type. EHT-HMS, No. 23552; near Cicio, Michoacán.  $\times 5$ .

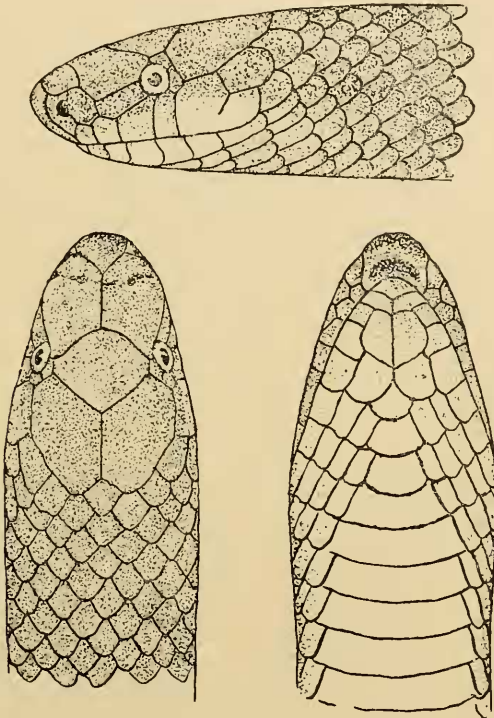
one anterior temporal, elongate; two secondary temporals; six upper labials, in the following order of size, 1, 2, 3, 4, 5, 6; five lower labials; first pair of chinshields touching three labials; second chinshields not typical, as broad as long in contact medially, and touching the first ventral.

Scale formula, 15-15-15; ventrals, 142; anal single; subcaudals, 30 + 1; length of body, 140 mm.; tail, 21 mm.; total, 161 mm.

*Color.* Above, grayish to violet brown, the edges of the scales darker; two outer rows lighter, likewise with darker edges; entire ventral surface creamy white, the pigment encroaching slightly on the paired subcaudals; rostral lightly pigmented; internasals and a stripe in nasal, cream; first two upper labials and the lower two-thirds of the following upper labials, cream; parietals lighter than frontal region.

*Remarks.* The unique specimen was taken under a rock on a hillside about a kilometer north of the village of Cicio (sp?) about 17 Km. south of the beginning of the Huetamo Road.

In this general region of Michoacán, two other species of the genus were taken; these were *Geophis dugesi* and *Geophis petersii*. Both of these forms lack the anterior temporal.



TEXT FIG. 2. *Geophis petersii* Bocourt. EHT-HMS, No. 5553; near Pátzcuaro, Michoacán.  $\times 4$ .

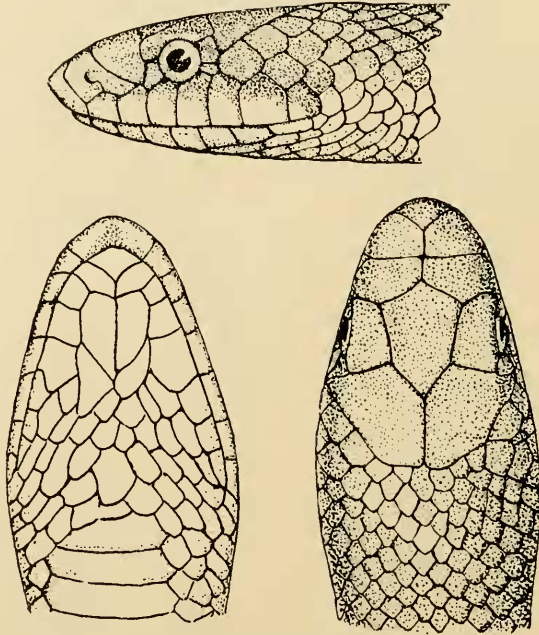
From the four Mexican species recognized in this section of the genus by Smith (Smiths. Misc. Coll., 99. No. 19, February 19, 1941, p. 6) this species differs as follows: from *isthmicus* in lacking transverse bars, the chinshields not touching rostral, six instead of seven upper labials; from *omiltemanus* in lacking the light transverse lines; five instead of seven lower labials, parietal longer than their distance from end of snout; fewer ventrals and subcaudals; from *longiceps* and *latifrontalis* in having an immaculate venter instead of a dark colored venter, and it has fewer ventrals and subcaudals.

A figure of *Geophis petersii* is included for comparison.

*Stenorhina mexicana* (Steindachner)

*Bergenia mexicana* Steindachner Novara-Expedition, Zoölogischer Theil, Bd. I, Reptilien., 1867, pp. 92-93, fig. 3.

I acquired a single specimen of a species of *Stenorhina* at Cuautlapan, Ver., in July, 1940, which appears to be referable to *Bergenia mexicana* Steindachner. This form, which seems unquestionably to be a species of *Stenorhina*, has not been recognized in recent years. The discovery of this specimen suggests strongly that the species should not be referred to *Stenorhina degenhardtii*, as Günther has



TEXT FIG. 3. *Stenorhina mexicana* (Steindachner). EHT-HMS, No. 25168; Cuautlapan, Veracruz.  $\times 3$ .

done, but should be recognized as a distinct species on the basis of distinctive color pattern, arrangement and character of the teeth, and scale formulae.

*Description.* EHT-HMS, No. 25168. Head not or but slightly distinct from neck; eye small, its diameter minutely greater than its distance from edge of lip, and contained in the distance between eye and tip of snout more than twice; rostral folded back over the tip of snout; part visible above is as wide as one internasal; internasals fused to the nasals; there being a suture running from lower edge of nostril to the first labial (on right side a partial groove between the

prefrontal and nostril, and a groove between the nostril and the rostral), and a groove runs from nostril and terminates in the middle of the upper (internasal) part of the scale; suture between prefrontals shorter than that between internasals, but the scale at its maximum width is a little greater than width of the internasal. Frontal large, a third longer than its distance from end of snout, longer than the parietals, its width more than two-thirds of its length, concave laterally (or very obtusely angulate); parietals as long as wide; loreal absent (fused with the prefrontal, which is in contact with the second labial, rather than with the posterior nasal); a single large preocular and two postoculars, the lower less than half size of the upper; temporals, 1 + 2 + 3; seven upper labials, third and fourth border the eye, sixth largest; seven lower labials, three touching the first chinshields, which are larger than the second pair; three irregular pairs of scales between first ventral and the chinshields; five scales between first ventral and last lower labial.

Scale formula: 23 about back of head, 17, 17, 17; ventral scales, 163; anal divided; subcaudals, 36.

*Dentition.* Maxillary bearing 14 teeth, increasing in size to third, then diminishing from the twelfth to fourteenth; teeth moderately curved; these followed after a short diastema (equal to space of one tooth) by two large, deeply grooved fangs, more than double length of the nearest tooth, and set out of the maxillary tooth row; 11 palatine teeth; 14 pterygoid teeth, the posterior teeth of the series largest and some (11th-14th) showing vague traces of a groove or depression near tip on the outer surface; 17 mandibular teeth, all rather short and thick.

*Color.* Above brownish to violet-gray with a very faint trace of a lighter line along fifth row of scales visible only when submerged. Ventral surface dirty white with indefinite grayish markings along edges of ventrals and trace of a darker irregular median line, more pronounced under tail; chin and lower half of upper lips dirty creamy white.

Total length, 349 mm.; tail, 50 mm.

*Remarks.* This form is distinguishable from *S. lactea* by the absence of the loreal, the smaller eye and the very different coloration; from *quinquelineatus* by the fact that the missing frenal is fused to the prefrontal rather than to the posterior nasal. The color is very different.

The teeth (*quinquelineatus*): 14 + 2 maxillary teeth, the fangs in line; most of the maxillary teeth show weak grooves, 17 mandibular teeth, most showing lateral grooves; posterior pterygoid teeth

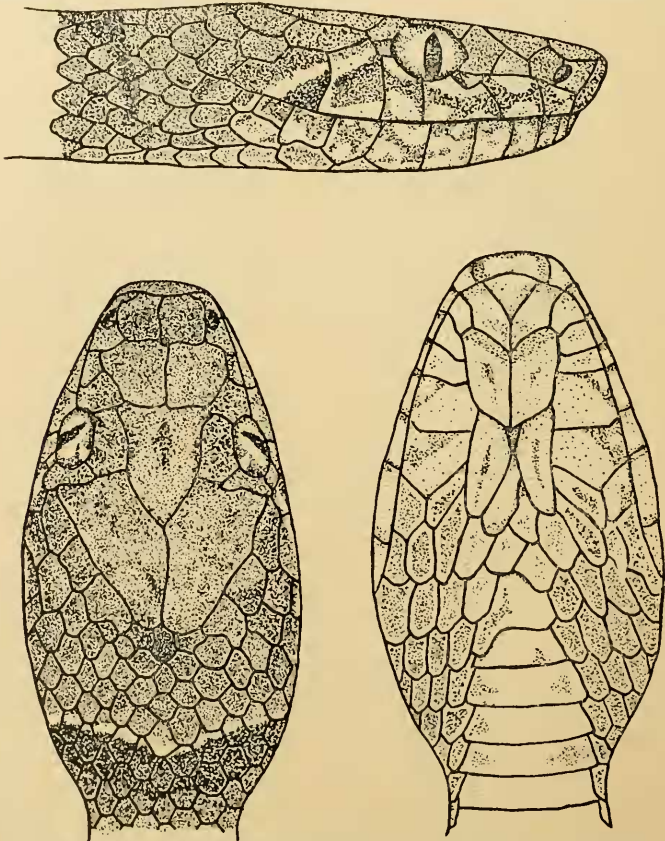


enlarging, some showing traces of grooves; 9 palatine teeth. In *lactea* Cope: 10 palatine teeth; 13 + 2 maxillary teeth, the large fangs practically in line with other teeth; some of the posterior teeth only show a trace of grooving.

The only difference from *Bergenia mexicana*, based on the description and figure, seems to be in the partial fusion of the posterior nasal with the internasal-nasal (a faint groove is evident, where the suture would normally be), and in the fact that the posterior nasal is in contact with the preocular. In other species of the genus these scales are somewhat variable, and I presume that the difference is merely an individual variation.

*Leptodeira mystacina* Cope

*Leptodeira mystacina* Cope, Proc. Amer. Philos. Soc. XI, 1869, p. 151. "Western region of Mexico, near the Isthmus of Tehuantepec," Taylor, Univ. Kansas Sci. Bull. XXV, 1938 (1939), pp. 325-326.



TEXT FIG. 4. *Leptodeira mystacina* Cope. EHT-HMS, No. 21400; Tierra Colorada, Guerrero.  $\times 3$ .

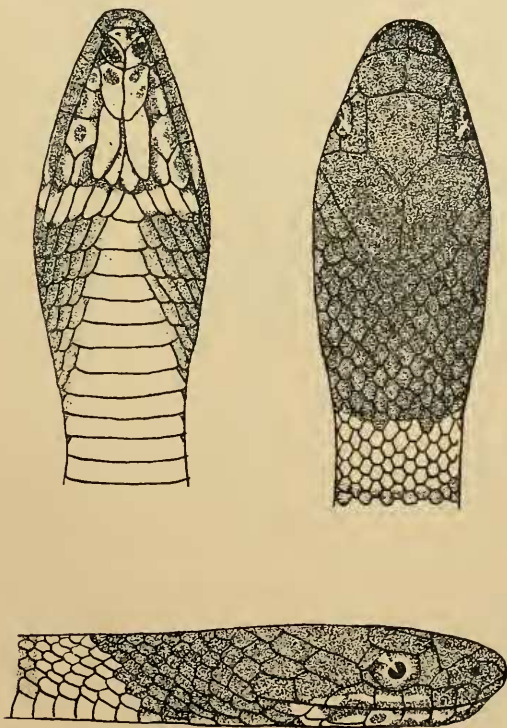
A single specimen of this rare snake (EHT-HMS, No. 21400) was collected near Tierra Colorada, Guerrero, August 31, 1939. The specimen was crawling among climbing plants on the face of a large boulder at night. The specimen agrees very well with the U. S. National Museum specimen mentioned by Taylor *loc. cit.*

There are 10 dark bands on the body; the tail seemingly uniformly dark, since the intervening light spots cannot be discerned. Tail extremely slender. Ventrals, 198; anal divided; subcaudals, 65. The specimen is a female. The head scales are delineated in the accompanying figure.

*Coniophanes lateritius* Cope

*Coniophanes lateritius* Cope. Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 524, (type locality, Guadalajara, Mexico); Bailey, Papers Mich. Acad. Sci. Arts Letters, XXIV, 1938 (1939), pp. 28-29, fig. 3.

I collected a single specimen of this very rare species (EHT-HMS, No. 5198) near Huajintlán (Km. 133), about 12 miles south of Puente de Ixtla, Morelos. The specimen is a juvenile male. It was found under a rock at the edge of a temporary rain pool.



TEXT FIG. 5. *Coniophanes lateritius* Cope. EHT-HMS, No. 5198; Huajintlán, Morelos.  $\times 5$ .

With the possible exception of Peters' type of *Tachymenis melanocephala* from an unknown locality, which Bailey regards as a synonym of *Coniophanes lateritius*, this is the only known specimen except the type that has been collected. Since this form has never been figured I append a drawing made by Miss Hazel Watson.

*Thamnophis multimaculatus* (Cope)

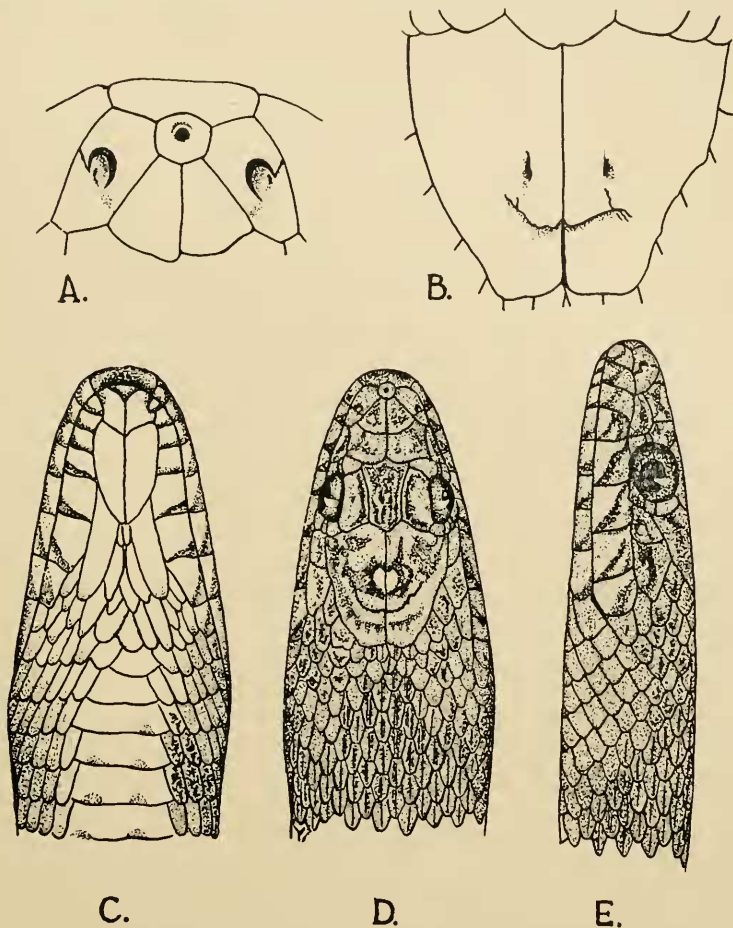
*Atomarchus multimaculatus* Cope, Amer. Nat. 1883, pp. 1300-1301.

*Thamnophis multimaculatus* Taylor and Knobloch, Proc. Biol. Soc. Washington, 53, Oct. 7, 1940, pp. 129-130.

This representative of the fauna of the United States has not been recognized as distinct from *Thamnophis angustirostris* Kennicott. As this form has never been figured, I include with the description a figure of a specimen from Mojárahie, Chihuahua (EHT-HMS, No. 23015). The pitted postrostral scale is not always present, representing a variable element. Similarly pits are not invariably present in the parietals. (Figures drawn by Walter Yost.)

*Description.* Head a little more than twice as long as wide; postrostral circular, separating the nasals, bearing a deep crater-like pit; internasals longer than wide, their posterior width nearly double their anterior width, distinctly longer than the prefrontals; latter scales wider than long, appearing concave anteriorly, convex posteriorly; frontal biconcave laterally, the posterior part rounded, in contact with the upper preocular; supraocular slightly narrower than posterior part of frontal, as wide as or minutely wider than the middle part; parietals longer than wide, longer than frontal, their length equal to their distance from nostril; parietal scales with a break entering the scale from their common suture and curving forward somewhat; just anterior to this, near the edge of paired yellow spots, are two indistinct pits or depressions. Nostril between two nasals, which are fused above nostril (a slight groove is present) and forming a suture below the nostril; loreal elongate, nearly twice as wide as high; three preoculars; upper very large, as wide as high, touching frontal; median rectangular, small, narrow, longer than high; lower quadrangular, higher than long; postoculars, three, on left, four on right side, the lower (one or two) scales lying almost wholly below the eye. Nine upper labials, the fifth only entering orbit; temporals, 1+1+3+4; lower labials, 12, the series forming an angle below eye, the anterior pair of lower labials greatly broadened for the length of their suture; anterior chinshields a little broader, but shorter, than the posterior, which are separated completely; six scales between first widened ventral and the last lower labial.

Scale formula: 26, 21, 21, 19, 19; dorsal scales, save outer row, strongly keeled; outer row smooth anteriorly; dimly keeled posteriorly. Ventrals, 158; anal single; subcaudals 64+.



TEXT FIG. 6. *Thamnophis multimaculatus* (Cope). EHT-HMS No. 23015; Mojárichic, Chihuahua. A, tip of snout (enlarged); B, parietals (enlarged); C, D, E, views of head,  $\times 2$ .

*Measurements in mm.* Length, 575; tail, 125 (tip missing); length of head, 23; width of head, 11.

*Color.* Ground color above, dull rusty-brown with a double or single median series of narrow transverse blotches, the centers of which are lighter, the borders darker, than the ground color; on each side are two series of spots which are similarly colored; on occiput two larger dark spots, separated by a dim lighter line. Head indis-



tinely patterned with slightly darker brown color; labials each with a lighter spot, the anterior spots light pearl gray, the posterior ones cream; labial sutures dark; chin and throat cream, the color gradually merging into the gray ventral coloration; an irregular row of darker spots (with lighter centers) on each side of the ventrals; posteriorly on the belly there are other spots; ashy-gray under the tail, the individual spots scarcely discernible.

*Remarks.* I have not been able to determine positively the character of the eye pupil. One is injured and the other somewhat distorted. It appears to be elliptic and somewhat horizontal. When the epidermis is removed the ground color appears pearl-gray, the spots gray-cream bordered by darker gray. A few of the paired dorsal spots are fused and these may cover eight or nine scales transversely. The spots are rarely more than two scale rows wide.

The peritoneum is deep black. There are blackish rings surrounding the papules which border the mandibular tooth series and these rings are connected by a narrow blackish line.

The stomach contained the remains of a small *Rana*.

*Oxybelis potosiensis* sp. nov.

(Plate VI, figs. 4, 5, 6)

*Type.* EHT-HMS. No. 23614 ♀, collected 38 Km. northwest Ciudad Maiz, San Luis Potosí (Km. 192), September 7, 1940, by E. H. Taylor.

*Diagnosis.* Related to *Oxybelis acuminatus*, but with a less attenuated head; two preoculars; the first pair of labials longer than first chinshields; anterior third of body with black transverse marking, conspicuous when the skin is stretched. No trace of lineation on venter.

*Description of the type.* Eye moderate, its length contained three times in the snout length; rostral projecting above, forming a thick low ridge; internasals elongate, their combined posterior width less than the length of one, in contact laterally with nasal only; prefrontal more than one-third longer than the internasals, angular laterally, forming a canthus rostralis, laterally in contact with the second and third upper labials; frontal narrow, somewhat longer than the supraoculars, but about as wide in widest part, a little longer than prefrontals and shorter than the parietals; parietals followed by a narrow median scale which is flanked laterally by two much enlarged post-parietals; nasal much elongated, distinctly widened at level of nostril and notched below, anterior to nostril by the



curving first labial; two preoculars, lower small, upper large, quadrangular, separated from frontal; loreal wanting; two postoculars, upper largest; temporals large, 1 + 2; 8-9 upper labials, the fourth and fifth, and the fifth and sixth entering orbit; 9-10 lower labials, four touching anterior chinshields; latter about as long as the first labial, much shorter than second pair; second chinshields separated from first ventrals by three paired scales; first ventral separated from last lower labial by 5-6 scales.

Scales smooth save for numerous minute elongate striae, the posterior tips thin and transparent; apical pits wanting; scale formula, 20 (about back of head), 17-17-15; ventrals 184, slightly angulate laterally; anal divided; subcaudals, 164.

The maxillary teeth, 15, are rather large and very strongly curved, followed after a short diastema by two grooved fangs which are scarcely larger than some of the teeth in the middle of the series. One or two of the teeth anterior to the diastema have slight grooves that are scarcely discernible; 10 palatine teeth, the anterior teeth nearly a half larger than posterior; 10 pterygoid, about size of the posterior palatine teeth but less curved; 22 dentary teeth, the anterior largest, curving; a few of these have indistinct lateral depressions or grooves.

*Color.* Above and below, on body generally, ashen to brownish gray. The head similarly colored on top and on sides to near labials; labials cream white, separated from the gray color by a black line; chin and throat (and extending a short distance on venter) cream white, the color gradually assuming the ventral coloration. Eye silvery with an anterior and posterior black spot. On anterior part of body transverse black bars, very distinct when skin is somewhat distended. No trace of ventral light lines.

*Measurements in mm.* Total length, 1,290; tail, 513; head length, 32; greatest width, 10.

*Remarks.* The maxillary teeth of a somewhat larger specimen of *O. acuminatus* differ as follows: The maxillary bone is less heavy, and the teeth are distinctly larger; there are 19 maxillary teeth, the three enlarged posterior fangs very strongly grooved, not separated from other by diastemata; the 8 or 9 preceding teeth with well-defined lateral grooves.

The scale characters of the head differ in the rostrals, being narrower with thinner upper edge; a single preocular; the posttemporal scales smaller; the first pair of labials much shorter than the first

chinshields; three, instead of two, labials enter the orbit; 9 or 10 upper labials.

In *O. microphthalmus* the eye is smaller, the coloration different; 9 upper labials, three entering orbit; the posterior scale rows are 13 only. *O. fulgidus* differs in having a totally different coloration, and in being much larger. Figures are given of three of the forms.

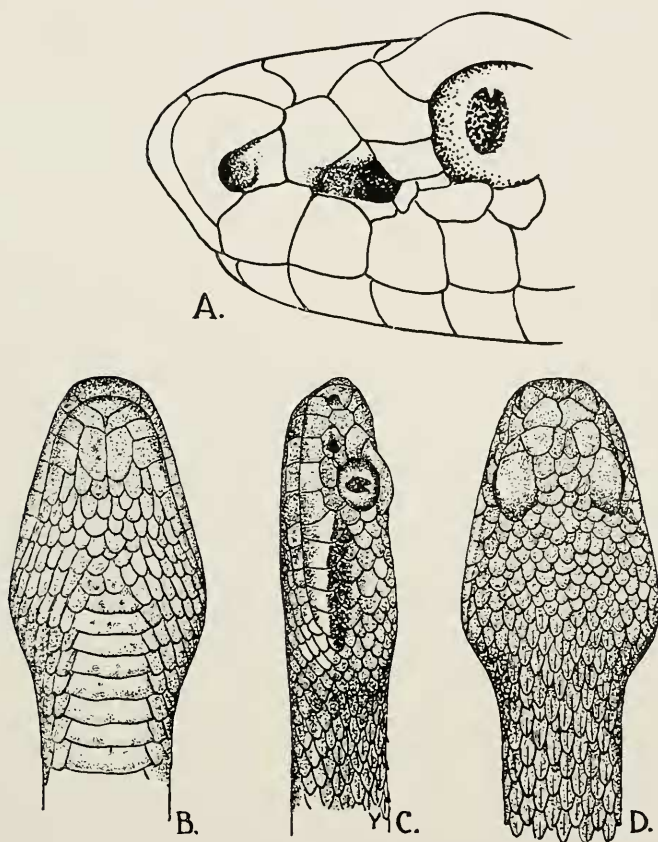
The specimen was discovered in a low tree. It was spread across certain small branches, and remained motionless while I was moving about under the tree, almost within reaching distance of it.

*Crotalus triseriatus gloydi* sp. nov.

*Type.* EHT-HMS, No. 23645, collected on the Cerro San Felipe (elevation 10,000 ft.) near Oaxaca, Oaxaca, Mexico, by Edward H. Taylor.

*Diagnosis.* A "peripheral" form of the *triseriatus* group having the anterior nasal four to five times as large as the posterior, the latter widely separated from the internasal and canthal; loreal touching labials; three preoculars; 6 scales precede supraoculars; head and body uniformly gray to bluish gray with a single median series of indefinite spots.

*Description of the type.* Rostral visible above for a distance half the width of the internasals; latter scales broadly in contact medially, and bordering entire upper edge of anterior nasal contacting the loreal; canthal scales large, touching supraoculars, loreal, and first supraocular laterally; separated by a pair of small scales; frontal region occupied by eight scales in three rows; supraoculars somewhat elevated, large,  $1\frac{1}{2}$  times as long as wide; occipital region with small scales, the posterior ones faintly keeled; anterior nasal very large, about 5 times as large as the posterior, which is excluded from internasal and canthal; pit bordered by a single scale anteriorly, posteriorly by second preocular and a second small scale; loreal single, higher than wide, touching labial, both nasals, and upper preocular; three preoculars, the third smallest; lacrimal about size of the second preocular; three postoculars; four temporals bordering labials largest; ten upper labials, the subocular ones separated by a single scale from eye; eleven lower labials; first chinshields large, touched by three labials; second pair very small, separated by a pair of scales. These are separated from first ventral by five pairs of scales; six scales between first ventral and the last labial.



TEXT FIG. 7. *Crotalus triseriatus gloydi* sp. nov. Type. EHT-HMS, No. 23645; Cerro San Felipe, Oaxaca, Oaxaca. A, lateral view of snout, enlarged; B, C, D, views of head.  $\times 2$ .

Scale formula: 21-21-17; ventrals, 159; caudals, 25. Total length, 416.5 mm.; tail, 35 mm. + rattle, 16.5 mm. = 51.5 mm.

*Color.* Gray or bluish gray to plumbeous, a lighter gray on venter; a cream line borders the upper part of the posterior labials; this bordered by a clearly defined dark line; an indefinite median series of small blotches, separated by a single scale row, consisting of an area slightly lighter than body color enclosed by small black spots on the scales, the whole not more than 2 to  $2\frac{1}{2}$  scales wide; there is no evidence of lateral secondary series of spots.

*Remarks.* I have followed Gloyd in considering the various forms of this group as subspecies, although not wholly convinced that this is true where intermediate forms are lacking. When more speci-

mens are known, its status can better be determined. The reduction of the scales on the head suggests a relationship with *omiltemanus* which occurs some 350 kilometers to the west in the mountains of the Sierra Madre del Sur; the lower ventral counts, however, point to the subspecies *anahuacus*, which is found in the high mountains to the north at a distance of some 400 kilometers.

Since the amphibian fauna and the reptilian fauna of this mountain range differ from the faunas of the two preceding regions it is not surprising that this crotalid should prove to be distinctive. The remarkable fact is that it had not been encountered before.

I dedicate the form to Dr. Howard K. Gloyd in recognition of his splendid contributions to the taxonomy of the crotalids.

### PLATE III

#### Species of the genus *Thorius* Cope

FIG. 1. *Thorius pulmonaris* Taylor. EHT-HMS, No. 24696; Cerro San Felipe, Oaxaca, Oaxaca, Mexico. Topotype. Total length, 53 mm.

FIG. 2. *Thorius narisovalis* Taylor. EHT-HMS, No. 24991; Cerro San Felipe, Oaxaca, Oaxaca, Mexico. Topotype. Total length, 68 mm.

FIG. 3. *Thorius dubitus* sp. nov. USNM, No. 111001; Acultzingo, Ver. Paratype. Total length, 47.5 mm.

FIG. 4. *Thorius troglodytes* sp. nov. USNM, No. 110999; Acultzingo, Ver. Paratype. Total length, 53 mm.

FIG. 5. *Thorius pennatulus* Cope. EHT-HMS, No. 25453; Cuautlapan, Ver. Total length, 46 mm.